

REMARKS/ARGUMENTS

Claims 1-27 are pending in the Application. Reconsideration and allowance in view of the following remarks are respectfully requested.

In Paragraph 3 which begins on page 2 of the Office Action, claims 1-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art (Figs. 1-3, page 1, line 13 to page 9, line 11) in view of U.S. Patent 6,136,632 of Higashi. This rejection is respectfully traversed.

The Office Action maintains that Higashi teaches that the TFTs of the data driver section (7) are not aligned in the X or Y direction, while the admitted prior art does not describe this structure. However, it is clear in Fig. 7A of Higashi to which reference is made in the Office Action that the channel width direction is formed in a direction along either the X or Y direction.

More specifically, in Fig. 7A, the regions designated by L1 and L2 are regions where TFTs will be formed, and each of these regions L1 and L2 is formed along a direction which is parallel to one of the X and Y directions and which is vertical to the other of the X and Y directions. Further, as described in column 8, lines 32 to 45 of Higashi, the regions L2 in the data driver section 7 which are not aligned in the X direction also extend in the Y direction and extend in a direction which is vertical to the X direction.

In Higashi, the above-described X and Y directions correspond to the sides of the substrate. Moreover, in Higashi, the data lines extend in the Y direction, and the scanning lines 4 extend in the X direction (see Fig. 2).

In accordance with the present invention, on the other hand, and as clearly specified in each of the independent claims, a channel width direction of a semiconductor element in which a channel width is larger than a channel length is

neither vertical (orthogonal) to nor horizontal to (parallel with) directions of a plurality of main sides of the substrate or to a primary direction of extension of the signal line.

Higashi does not describe or suggest that the TFTs are provided such that the channel width direction is aligned in a direction which is neither vertical to nor parallel with either the X or the Y direction.

According to the present invention, by providing the semiconductor elements in which the channel width is larger than the channel length such that the channel width direction is aligned, as described above, it is possible to prevent the defective crystallized region generated along the edges of the laser irradiated region from being generated non-uniformly among a plurality of semiconductor elements even when poly-crystallization of a semiconductor film of the semiconductor elements is performed by laser annealing.

When the channel width direction is either vertical or horizontal to the X and Y directions, however, it is very likely that deterioration of the element characteristics will occur irregularly only in certain semiconductor elements. Such non-uniform element characteristics directly result in unevenness of display in a display apparatus. Higashi, however, is completely oblivious to the concept of a structure in which the channel width direction is formed in a direction which is not vertical nor horizontal with regard to either the X or Y direction.

Accordingly, even an improvement of the admitted prior art in view of the disclosure of Higashi would only lead to a change in the speed of laser annealing or a change in a beam diameter in laser annealing. Consequently, the present invention is neither shown nor suggested by Higashi, even when an attempt is made to combine it with Applicants' admitted prior art.

The manner in which the claims clearly distinguish patentably over the attempted combination of prior art is illustrated, for example, by claim 1 which defines a semiconductor device in which a plurality of semiconductor elements are formed on a substrate. In at least semiconductor elements that sample data to be supplied to other semiconductor elements, "a channel width of a channel region formed in a semiconductor layer to which laser annealing is applied is larger than a channel length thereof, and a channel width direction is neither vertical to nor parallel with regard to a side direction of such substrate". Furthermore, in at least the semiconductor elements that are connected to a signal line to which data to be supplied to a drain of a corresponding one of said plurality of semiconductor elements is input and which is common to said plurality of semiconductor elements that output data from the signal line, "a channel width of a channel region is larger than a channel length thereof, and the channel width direction is neither parallel with nor orthogonal to a primary direction of extension of the signal line". As described in detail above, the attempted combination of prior art neither shows nor suggests such features in accordance with the present invention.

The remaining independent claims, which include claims 5, 9, 10, 14, 15, 17, 18 and 20-23 contain limitations similar to those of claim 1 and therefore also distinguish patentably over the art. The dependent claims contain all of the various limitations of the independent claims so as to also distinguish patentably over the art.

In conclusion, claims 1-27 are submitted to clearly distinguish patentably over the prior art for the reasons discussed above. Therefore, reconsideration and allowance are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los

Appl. No. 09/148,606
Amdt. Dated March 8, 2006
Reply to Office Action of December 13, 2005

Attorney Docket No. 81784.0182
Customer No.: 26021

Angeles, California telephone number (213) 337-6846 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: March 8, 2006

By: 

John P. Scherlacher
Registration No. 23,009
Attorney for Applicant(s)

500 South Grand Avenue, Suite 1900
Los Angeles, California 90071
Phone: 213-337-6700
Fax: 213-337-6701